the time (European system) on the Greenwich meridian at latitude 39° 6′, and column e the same time on the American system. Column f allows for the lag of the moonrise, or the time lost in the approximately six-hour trip from the Greenwich meridian to the Cincinnati meridian. And column g corrects to standard time. Column g may be eliminated to advantage by reconstructing Auxiliary Table B to include the standard time correction.

A further shortening of the computation may be effected by combining Table A and Table B and the standard time correction in a single table, card form, by the use of which the times of moonrise and moonset can be found directly by inspection. Table 3 illustrates such a form, made for Cincinnati. By using it in conjunction with column b, the figures in column h are arrived at directly, except in two cases, where the card gives a value one minute off. This one-minute error occurs two or three times per month and is due to the fact that the card applies the Table B corrections to the differences in column b instead of to the differences in column d. The card form is exceptionally rapid and is commended to all stations in the Bureau.

TABLE 1.—*Auxiliary tables for computing the time of moonrise and moonset at Cincinnati, Ohio*

Latitude, 39° 6′ north;=40°−0.9°. 0.9°/5°=0.18
Longitude, 84° 30′ or 5.63 hours west of Greenwich. 5.63/24=0.235

A.—*Latitude correction.* (*0.18×tabular difference for latitude*)

Tabular difference (minutes)	0	1	2	3	4	5	6	7	8	9
	Correction (minutes)									
0	0	0	0	1	1	1	1	1	1	2
10	2	2	2	2	3	3	3	3	3	3
20	4	4	4	4	4	4	5	5	5	5

B.—*Longitude correction.* (*0.235×tabular difference for one day*)

Tabular difference (minutes)	0	1	2	3	4	5	6	7	8	9
	Correction (minutes)									
20	5	5	5	5	6	6	6	6	7	7
30	7	7	8	8	8	8	8	9	9	9
40	9	10	10	10	10	11	11	11	11	12
50	12	12	12	12	13	13	13	13	14	14
60	14	14	15	15	15	15	16	16	16	16
70	16	17	17	17	17	18	18	18	18	19
80	19	19	19	20	20	20	20	20	21	21

TABLE 2.—*Computation of moonrise and moonset at Cincinnati, Ohio, June, 1925*

[Latitude 39° 6′; longitude 84° 30′]

	a	b	c	d	e	f	g	h
					p. m.			*p. m.*
1	13 20	13 18	±0	13 18	1.18	+15	−22	1.11
				+15 *64*				
2	14 21	14 22	±0	14 22	2.22	+15	−22	2.15
				+15 *65*				
3	15 24	15 28	−1	15 27	3.27	+16	−22	3.21
				+16 *68*				
4	16 30	16 36	−1	16 35	4.35	+17	−22	4.30
				+17 *71*				
5	17 38	17 48	−2	17 46	5.46	+17	−22	5.41
				+17 *71*				
6	18 48	18 59	−2	18 57	6.57	+16	−22	6.51
				+16 *70*				
7	19 56	20 10	−3	20 07	8.07	+15	−22	8.00
				+15 *65*				
8	21 01	21 14	−2	21 12	9.12	+13	−22	9.03
				+13 *57*				
9	21 59	22 11	−2	22 09	10.09	+12	−22	9.59
				+12 *49*				
10	22 49	23 00	−2	22 58	10.50	+10	−22	10.46
				+10 *42*				
11	23 33	23 41	−1	23 40	11.40	+9	−22	11.27
12								
				+9 *37*	*a. m.*			*a. m.*
13	0 12	0 18	−1	0 17	0.17	+8	−22	12.03
				+8 *32*				
14	0 47	0 50	−1	0 49	0.49	+7	−22	12.34
				+7 *31*				
15	1 21	1 20	±0	1 20	1.20	+7	−22	1.05
				+7 *31*				
16	1 53	1 50	+1	1 51	1.51	+7	−22	1.36
				+7 *30*				
17	2 26	2 20	+1	2 21	2.21	+8	−22	2.07
				+8 *32*				
18	3 00	2 52	+1	2 53	2.53	+8	−22	2.39
				+8 *35*				
19	3 36	3 26	+2	3 28	3.28	+9	−22	3.15
				+9 *38*				
20	4 16	4 04	+2	4 06				

TABLE 3.—*Corrections to apply to time of moonrise and moonset at latitude 40° N., meridian of Greenwich, to obtain the ninetieth meridian time of moonrise and moonset at Cincinnati, Ohio, latitude 39° 06′ N. and longitude 84° 30′ W.*

Long. Diff. | Lat. Diff.	−25 to −20	−19 to −14	−13 to −9	−8 to −3	−2 to +2	+3 to +8	+9 to +13	+14 to +19	+20 to +25
20 to 23	−21	−20	−19	−18	−17	−16	−15	−14	−13
24 to 27	−20	−19	−18	−17	−16	−15	−14	−13	−12
28 to 31	−19	−18	−17	−16	−15	−14	−13	−12	−11
32 to 36	−18	−17	−16	−15	−14	−13	−12	−11	−10
37 to 40	−17	−16	−15	−14	−13	−12	−11	−10	−9
41 to 44	−16	−15	−14	−13	−12	−11	−10	−9	−8
45 to 48	−15	−14	−13	−12	−11	−10	−9	−8	−7
49 to 53	−14	−13	−12	−11	−10	−9	−8	−7	−6
54 to 57	−13	−12	−11	−10	−9	−8	−7	−6	−5
58 to 61	−12	−11	−10	−9	−8	−7	−6	−5	−4
62 to 65	−11	−10	−9	−8	−7	−6	−5	−4	−3
66 to 70	−10	−9	−8	−7	−6	−5	−4	−3	−2
71 to 74	−9	−8	−7	−6	−5	−4	−3	−2	−1
75 to 78	−8	−7	−6	−5	−4	−3	−2	−1	0
79 to 82	−7	−6	−5	−4	−3	−2	−1	0	+1

NOTES, ABSTRACTS, AND REVIEWS

DAYLIGHT ILLUMINATION ON A SLOPING SURFACE: A CORRECTION

By HERBERT H. KIMBALL

In the MONTHLY WEATHER REVIEW for December, 1922, **50**: 625, equation (3) has been improperly used to determine the angle of incidence of a solar ray with a sloping surface. The angle of incidence $(90^\circ - a')$ is best computed by the second method given in the above reference. Mr. Edgar W. Woolard has also called attention to the fact that it may be computed by the law of cosines, as follows:

$$\text{Cos}\ \theta = \cos v \sin a + \sin v \cos a \sin w,$$

in which v = angle between a horizontal surface and the sloping surface,

a = solar altitude,

$90^\circ - w$ = azimuth of sun from the meridian of the place,

and θ = angle of incidence of a solar ray with the sloping surface.

All values given in Tables 8, 9, and 10, pages 625–26 of the above-mentioned REVIEW are too high, with the exception of those for hour angle of the sun from the meridian = 0° (w = 90°). The maximum error occurs when w = 0°. Since the component of the radiation received diffusely from the sky is not affected by the above equation, for surfaces sloping 10° from the horizon the error can not exceed 1 per cent, and may be disregarded. For surfaces sloping 20° from the horizontal the error can not exceed 4 per cent, and is unimportant. For surfaces sloping 30° from the horizontal the error in extreme cases may approximate 10 per cent.